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any favourable night, two faint stars, which must be telescopic in England, are distinctly seen, one on each side of them."

On the Uranography of Saturn, including the Correction of certain Errors propagated generally in Scientific Works on that subject. By Dr. Lardner.

After noticing the views entertained by other writers upon this subject, the author enters into a mathematical investigation of the true form, magnitude, and position of the projection of the rings, as seen from different latitudes of the planet.

If we suppose the observer stationed at any given latitude and a perpendicular drawn from his station upon the plane of the rings, this perpendicular will be the sine of his latitude, while the distance of this perpendicular from the centre of the rings will be the cosine.

If the observer were stationed anywhere in the axis of the planet above the plane of the rings, a visual ray proceeding from his station to one of the edges, and supposed to curve round that edge, would describe a right cone, the axis of which would coincide with that of the planet. The projection of the edges of the ring upon the firmament would be the intersection of the surface of this right cone with the celestial sphere, and would obviously then be a parallel to the celestial equator, whose declination would be the complement of the semi-angle of the cone.

But if the station of the observer be transferred from the axis of the planet to any point on its surface, then the cone formed by the visual ray will no longer be a right cone; it will, on the contrary, be an oblique cone, the obliquity of whose axis to the plane of the rings will be equal to the latitude of the observer. The projection of the rings upon the celestial sphere will be the intersection of this oblique cone with the surface of the sphere, and will, therefore, no longer be a parallel of declination. Different points of its projection upon the sphere will have different declinations; that point which is upon the meridian of the observer above the horizon having the greatest, and that which is upon the meridian below the horizon having the least declination. All the analytical formulæ necessary for the determination of this projection of each of the edges of the rings upon the firmament are given in the paper, and such of the formulæ as are necessary for the purpose are tabulated for every two degrees of latitude within the limits of latitude at which the rings are visible.

It appears from this, that the rings form upon the firmament of the observer zones, the edges of which are at variable distances from the celestial equator, the point of each edge which crosses the meridian being most remote from the equator, and the distance decreasing from that point to the horizon; the point of the edge which is upon the horizon being, therefore, nearer to the celestial

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equator, and having a less declination than any other point of the visible portion of the same edge.

From all this it follows that the several edges of the zones formed by the rings are intersected by parallels of declination at various angles, so that each parallel lying within the range of the rings is divided into two, three, or more segments, according to the number of edges which it intersects.

Objects in these parallels are carried by the diurnal motion of the firmament successively under the rings, are occulted by them, and are visible in the interval between them. Some objects are seen at rising below, and at setting above, both rings being visible between them while crossing the interval. The projection of the rings upon the firmament being symmetrical with relation to the meridian, prime vertical, and horizon, the same phenomena in each case, which are developed between the rising of an object and its culmination, are reproduced in a contrary order between its culmination and its setting.

An elaborate investigation of these phenomena relative to the fixed stars, the sun, the satellites, and the planets, are given in the paper; and the solar eclipses in particular, which take place during the winter half-year, are described with minute detail; and the continuance of each class of eclipses is given in terrestrial and Saturnian days.

Among the most remarkable and unexpected consequences of the principles laid down and developed in this paper, are the following:—

At all latitudes under 25° the rings permanently intercept no part of the firmament.

The effects of the diurnal motion, combined with the peculiar position of the rings, are such, that any object whatever which comes above the horizon passes at one time or another between its rising and setting, clear of the rings.

At latitudes between 25° and 45° a certain zone of the heavens, of small breadth, even when greatest, is permanently covered by the inner ring, so that all objects within this zone are perpetually concealed from the observer. This zone at 25° consists of a single parallel, and increases gradually in breadth.

At the latitude of 45° a similar zone begins to be permanently covered by the outer ring, and the width of this zone gradually increases with the latitude. Thus, between the latitude of 45° and that at which the rings wholly disappear by sinking below the horizon of the observer, the only portion of the heavens continually intercepted are two narrow zones, one covered by each of the rings, but less considerably in breadth than the projections of the rings; the breadth of these zones increasing, one from the latitude of 25° and the other from the latitude of 45° to the total disappearance of the rings.

When the sun, as it sometimes does, comes within the declinations which limit these zones of perpetual occultation, it is eclipsed continually from rising to setting.

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This is the only case in which a continual solar eclipse is manifested, and this, as appears by the paper, only takes place for intervals of very limited duration and in particular latitudes. The most ordinary solar eclipses which are manifested are such as are of short duration, the sun being carried by the diurnal motion under one or other of the rings, or successively under both of them, and the duration of the eclipses being determined, not as assumed by Dr. Mädler, by the declination only, but by the diurnal motion and the conditions which determine the obliquity of the parallels of declination to the edges of the rings.

It is also shown that no zone of the heavens is constantly visible in the interval between the rings, except between the latitudes 56° and 58°, and there a zone bounded by two parallels very close together is alone visible. At all other latitudes the parallels of declination, which at one altitude pass between the rings, are at other altitudes covered by them.

None of the satellites, except the eighth, are ever eclipsed by the rings, except at or very near the Saturnian equator, where they are intercepted by the thickness of the rings. The eighth satellite, however, having an orbit inclined to the plane of the rings at about 13°, phenomena are developed in its monthly motion, which are analogous to the solar eclipses described above.

The thickness of the rings being unascertained, the author assumes its probable major and minor limits, and investigates the manner in which it would modify the phenomena.

To form a judgment of the interest and importance of this paper, it will, however, be necessary to refer to the paper itself, since it is rather on the details than any general views that the novelty and interest of the points developed in it depends.

Extract of a Letter from Sig. Secchi to the Astronomer Royal.

"I have the honour to announce to you the discovery of a new comet, found yesterday evening at $6^{h}\frac{1}{4}$ in the constellation *Lepus*, near the star μ. A first comparison with a small star of the 10th magnitude, which was very near the comet, showed that it was moving with rapidity towards the north. Here are the observations, made immediately afterwards by comparison with a star (*a*) of the 9th magnitude, with a ring micrometer on the equatoreal of Cauchoix.

1853.	Rome Mean Time. h m s		s		′ ″
March 6	8 55 42	Comet's R.A.	= (*a*) + 7·01	Decl.	= (*a*) − 8 14?
	9 43 51	— —	= (*a*) + 1·07	—	= (*a*) −13 29·7

"The position of the star (*a*) has been obtained relatively to No. 9420 of the H.C. of Lalande, by the intermediate use of another star (*e*), and is as follows:—

	h m s		° ′ ″
App. R.A. (*e*)	= 4 53 46·32	Decl. (*e*)	= −16 19 20·14
— — (*a*)	= 4 52 38·77	— (*a*)	= −15 59 1·38